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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,027	01/21/2004	Wolfgang Maus	E-80044	9168

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LERNER GREENBERG STEMER LLP
P O BOX 2480
HOLLYWOOD, FL 33022-2480

EXAMINER	
MERKLING, MATTHEW J	

ART UNIT	PAPER NUMBER
1795	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/763,027	MAUS, WOLFGANG	
	Examiner	Art Unit	
	MATTHEW J. MERKLING	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 August 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4 and 6-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 6-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 6 and 8-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Ota et al. (US 5,486,338) as evidenced by Stroom et al. (US 6,245,301) and http://www.matweb.com/search/DataSheet.aspx?MatGUID=0cf4755fe3094810963eaa74fe812895&ckck=1.

Regarding claims 1, 9, 11, 16, and 25-27, Ota discloses a honeycomb body comprising:

a housing (2);

a matrix (corrugated foils (8) and flat sheets (7), inside housing) having a diameter and connected to said housing (see Figs. 1, 2, 3, 5, 6); and

at least one contraction limiter (5, 9a, 9b, 10, 11) causing an outwardly directed tensile stress in at least one part of said matrix (see Figs. 1, 2, 3, 5, 6) for preventing the average initial diameter of said matrix from decreasing by more than 5% after repeated alternating thermal stresses in the range between 600C and 1050C (after the matrix has been through multiple repeated thermal stresses, caused by startup and shutdown of gas purifying apparatus, the average initial diameter will still be the same. In other words,

the initial diameter will increase during heat up and subsequently decrease during cooldown, where it will return to its initial diameter, therefore the diameter does not decrease at all, but rather stays the same).

In addition, the stainless steel of Ota's matrix has a coefficient of thermal expansion of ~19.5 μm/m°C (see http://www.matweb.com/search/DataSheet.aspx?MatGUID=0cf4755fe3094810963caa74fe812895&ckck=1). Using this coefficient of thermal expansion and diameter of a matrix of standard diameter (such as 12.5cm, see US 6,245,301 col. 13 lines 56-59), the increase (and subsequent decrease) in the diameter of the honeycomb matrix would amount to an ~1%.

Regarding claim 2, Ota, as discussed in claim 1 above, further discloses said matrix (8,7) is connected to said housing (3) by said contraction limiter (cushion member (5) and joints (9a)).

Regarding claim 3, Ota, as discussed in claim 1 above, further discloses said contraction limiter (11) has a first end region (11b) connected to said matrix (see Fig. 11) resulting in a connecting region, and a second end region (11a) connected to said housing (2, see Fig. 11) resulting in a fastening region).

Regarding claim 4, Ota, as discussed in claim 1 above, further discloses said contraction limiter (11) and said matrix (3) have a common connecting region (11b, see Fig. 11); and

said matrix (3) has walls (7) connected to one another by joining connections (corrugated foil (8)), the tensile stress being applied through said common connecting region.

Regarding claim 8, Ota, as discussed in claim 1 above, further discloses:

said matrix (3) has a circumference (see Fig. 2); and

said contraction limiter (5, 6 in Fig. 1) is one of a plurality of contraction limiters (see Fig. 10) disposed axially one behind another (see Fig. 1), with an offset with respect to one another in a direction of said circumference of said matrix (see Fig. 11).

Regarding claim 10, Ota, as discussed in claim 1 above, further discloses said matrix is thermally insulated with respect to said housing (via gap between the two structures, see Fig. 2).

Regarding claims 12 and 20, Ota, as discussed in claim 1 above, further discloses said matrix (3) has walls formed of at least partially structured sheet-metal foils (metal honeycomb, see abstract) stacked and/or coiled forming channels through which a gas can flow (honeycomb, see Fig. 3).

Regarding claims 6 and 21-23 Ota, as discussed in claim 1 above, further discloses said contraction limiter (cushion sections 11) and said matrix (3) have a common connecting region (11b), said common connecting region is disposed close to an end side of said matrix (Ota discloses said cushion sections and joining sections are provided over the entire axial length i.e. up to the edge of said matrix, as pictured in Figs. 7 and 8, see col. 5 lines 40-44).

Regarding claim 13, Ota, as discussed in claim 12 above, further discloses said matrix (3) is at least partially surrounded by an outer structured foil (foil (7) see Fig. 2).

Regarding claim 14, Ota, as discussed in claim 12 above, further discloses said sheet-metal foils have a thickness of less than 0.06 mm (.05mm, col. 5 line 50-52).

Regarding claims 17 and 24, Ota, as discussed in claim 1 above, further discloses said contraction limiter (10) has means for preventing crack propagation (see corrugated limiters in Fig. 3 which will expand without cracking).

Regarding claims 15, 18 and 19, while Ota, as set forth in claim 12 above doesn't teach the thickness of the sheet metal of the honeycomb or the density of the cells in the honeycomb it was well known in the art at the time of the invention that these variables have a direct relationship to the performance of the honeycomb (for example, more cells, thinner walls yields more surface area for catalyst, as implied by Cyron, col. 6 lines 42-58). As such, these dimensions are not considered to confer patentability to the claim. These variables would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the claimed size of the sheet metal and density of the cells cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the size and density of the cells to obtain the desired performance (In re Boesch, 617 F. 2d. 272,205 USPQ 215 (CCPA 1980)). Since it has been held that where general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (In re Aller, 105 USPQ 223).

3. Claim 7 is rejected under 35 U.S.C. 102(b) as being anticipated by Maus et al. (US 5,916,530).

Regarding claim 1, Maus discloses a honeycomb body, comprising:

a housing (1);

a matrix (2) having an average initial diameter (inherently, the matrix is cylindrical, col. 4 line 63 - col. 5 line 4) and connected to said housing (via 11); and

at least one contraction limiter (11) configured for imparting an outwardly directed tensile stress in at least one part of said matrix (the limiter 11 will inherently provide a stress to the matrix since it is attached, see col. 5 lines 5-8) for preventing the average initial diameter of said matrix from decreasing by more than 5% after repeated alternating thermal stresses in the range between 600C and 1050C (after the matrix has been through multiple repeated thermal stresses, caused by startup and shutdown of gas purifying apparatus, the average initial diameter will still be the same. In other words, the initial diameter will increase during heat up and subsequently decrease during cooldown, where it will return to its initial diameter, therefore the diameter does not decrease at all, but rather stays the same).

Regarding claim 7, Maus further discloses said matrix (2) and said housing (1) define an annular gap therebetween (see Fig. 3) and surrounding said matrix, and said at least one contraction limiter (11) sealing said annular gap surrounding said matrix (see Fig. 3 and col. 5 lines 9-12).

Regarding claim 28, Maus further discloses said at least one contraction limiter is a single-piece corrugated foil encircling said matrix (see Fig. 3).

Regarding claim 29, Maus further discloses said at least one contraction limiter (11) is affixed to said matrix at a vicinity of a longitudinal end of said matrix (see Fig. 3).

Response to Arguments

4. Applicant's arguments filed 8/5/09 have been fully considered but they are not persuasive.

On page 11, Applicant argues that Ota teaches the exact opposite for the contraction limiter because Ota teaches that the contraction limiters do not impart stresses to the honeycomb. The examiner respectfully disagrees with this argument. The contraction limiters of Ota are indeed attached to the matrix (see example 3 which discloses the attachment of the contraction limiter 11 to the honeycomb). As such, the contraction limiters inherently exert an outward force on the honeycomb matrix.

Similarly, Applicant argues on page 15 that Maus also does not disclose a contraction limiter. The examiner notes, that for the same reason as above, the contraction limiter of Maus is physically attached to the casing, as well as the honeycomb, and therefore, inherently exerts an outward force on the matrix.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW J. MERKLING whose telephone number is (571)272-9813. The examiner can normally be reached on M-F 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. J. M./
Examiner, Art Unit 1795
/Jennifer K. Michener/
Supervisory Patent Examiner, Art Unit 1795